

Appl. No. 10/705,374
Amdt. dated February 13, 2007
Reply to Office action of 08/14/2006

Amendment to the Title of the invention:

Please change the title of the Invention to:

-- ~~WASHING DEVICE FOR PACKAGING THE IMAGE CLEANING~~

SYSTEM HAVING A COMBINATION OF A SUBSTRATE AND A FRAME

5 **LAYER BEING CLEANED --**

So, the new title of the invention is changed to:

-- **CLEANING SYSTEM HAVING A COMBINATION OF A**

SUBSTRATE AND A FRAME LAYER BEING CLEANED --

Amendments to the Specification:

Please change the page number "1/1, 2/2, 3/3, 4/4, 5/5" to --1/5, 2/5, 3/5, 4/5, 5/5 --, respectively.

- 5 Please replace the paragraph beginning at page 1, line 4, with the following rewritten paragraph:

-- The invention relates to a cleaning ~~mechanism-system having for a combination of a substrate and a frame layer being cleaned, an image sensor package, and more in-particularly to a system mechanism~~ for efficiently and
10 quickly cleaning a combination of a substrate and a frame layer of an image sensor in package processes, so as to increase the production yield. --

Please replace the paragraphs beginning at page 1, line 21, with the following rewritten paragraphs:

- 15 -- In order to finish the ~~above-mentioned package processes, the chamber 24 of the substrate 10 has to be efficiently cleaned so that the number of particles can be decreased.~~, ~~so as to decrease the particle.~~

Please refer to FIG. 2 ~~showing~~, ~~is a traditional method of a cleaning mechanism-system for an image sensor semi-package.~~ The cleaning system
20 includes a body element 40, a rotating device 42, and a cleaning device 44.

The body element 40 is formed with a chamber 46. The rotating device 42 is arranged within the chamber 46 of the body element 40. The cleaning device 44 is arranged within the chamber 46 of the body element 40 and is located on the upper end of the body element 40. ~~So as to while the substrate 10 formed with~~
25 When the combination of the substrate 10 and the frame layer 18 is mounted on the rotating device 42, the chamber 24 of the substrate 10 is faced-faces the cleaning device 44, and mechanism 44, respectively, the cleaner of the cleaning mechanism-device 44 is ejected to clean the chamber 24 of the combination 46 of the substrate 10 and the frame layer 18.

- 30 However, the conventional cleaning ~~mechanism-system~~ for cleaning an image sensor ~~semi-package~~ has the following drawbacks.

1. Since a right angle is formed between the substrate 10 and frame layer 18, ~~so particles are easily hidden in hidden~~ at the right angle, ~~thus, Thus, the cleaner~~ can not efficiently clean the ~~chamber 24. --chamber24. --~~

- 5 Please replace the paragraphs beginning at page 2, line 18, with the following rewritten paragraphs:

-- An object of the invention is to provide a cleaning ~~mechanism for system~~ having a combination of a substrate and a frame layer being cleaned in an image ~~sensor package, wherein the processes for packaging an image sensor may be~~
10 efficiently cleaned, so as to increase the production yield.

To achieve the above-mentioned object, the invention provides a cleaning ~~system including: a combination of a substrate and a frame layer arranged on the~~ substrate to form a chamber together with the substrate; a sealed up body formed ~~with a cleaning room; a rotating device located within the cleaning room of the~~
15 sealed up body, wherein the combination of the substrate and the frame layer is ~~fixed on the rotating device; and a cleaning device, which is disposed in the~~ cleaning room of the sealed up body, for cleaning the chamber of the substrate by ~~a cleaner ejected directly from the cleaning device into the chamber in a direction~~
20 opposite to a direction of a centrifugal force of the combination of the substrate ~~and the frame layer. The rotating device is configured to fix the combination of~~ the substrate and the frame layer with the chamber facing the cleaning device. a ~~cleaning mechanism for an image sensor package, the cleaning mechanism is for~~ cleaning the substrate and the frame layer arranged on the substrate of the image ~~sensor to form a chamber between the frame layer and the substrate. The~~
25 mechanism includes a seal up body is formed with a cleaning room. A rotating ~~device is located within the cleaning room of the seal up body. The substrate~~ formed with a frame layer is fixed on the rotating device, then, the chamber of the ~~substrate is faced the centrifugal force direction from the rotating device. A~~ cleaning device is mounted on the side of the cleaning room of the seal up body;
30 and is cleaned the chamber of the substrate by cleaner. --

Please replace the paragraphs beginning at page 3, line 11, with the following rewritten paragraphs:

-- FIG. 1 is a cross-sectional view showing a conventional image sensor package.

5 FIG. 2 is a schematic ~~illustrated illustration~~ showing a conventional cleaning mechanism ~~system~~ for an image sensor ~~semi-package~~.

FIG. 3 is a schematic ~~illustrated illustration~~ showing a cleaning mechanism ~~system~~ for an image sensor ~~semi-package~~ of the present invention.

10 FIG. 4 is a ~~schematic illustration~~ cross-sectional view showing a ~~the~~ cleaning mechanism ~~for system having an~~ image sensor ~~semi-package being cleaned~~ according to ~~of~~ the present invention. --

Please replace the paragraphs beginning at page 3, line 20, with the following rewritten paragraphs:

15 -- Please refer to FIG. 3. A cleaning mechanism ~~system~~ for an image sensor of the present invention includes a sealed up body 50, a rotating device 52, and a cleaning device 54. ~~mechanism 54.~~

20 The sealed up body 50 has a lower element 56, a periphery wall 58 connected to the lower element 56, and an ~~upper~~ upper cover 60 connected to the periphery wall 58 to form a ~~chamber~~ cleaning room 62.

The rotating device 52 is located within the cleaning room 62 of the sealed up body 50, and arranged on the lower element 56.

25 The cleaning device 54 is located within the cleaning room 62 of the sealed up body 50, and mounted on the periphery wall 58 of the cleaning room 62 of the sealed up body 50, and the cleaning device 54 may be ~~ejected~~ eject the cleaner. In the embodiment, the cleaner is water, nitrogen or carbon dioxide, or N₂ or CO₂.

30 Please refer to FIG. 4, which is a schematic illustration showing the cleaning system having cross-sectional view showing a cleaning mechanism for an image sensor semi-package being cleaned. A The image sensor semi-package is defined as a combination of a substrate 64 and is formed with a frame layer 66, for an image sensor package. A chamber 68 is formed between the

substrate 64 and the frame layer 66. The substrate 64 is located within the cleaning room 62, and is mounted on the rotating device 52, and the chamber 68 ~~is faced~~faces the periphery wall 58 of the cleaning device ~~50~~54. Therefore, the cleaner is ejected from the cleaning device 54 ~~is ejected~~ to the chamber 68 in a
5 direction opposite to a direction of a centrifugal force of the combination of the
substrate 64 and the frame layer 66, so that the chamber 68 of the combination
may be cleaned ~~the chamber 68~~ by the cleaner, --and centrifugal force from the
~~rotating device 52. In this invention, the rotating device 52 is configured to fix the~~
combination of the substrate 64 and the frame layer 66 with the chamber 68 facing
10 the cleaning device 54. --